Edible & Poisonous Mushrooms.

M. C. COOKE.

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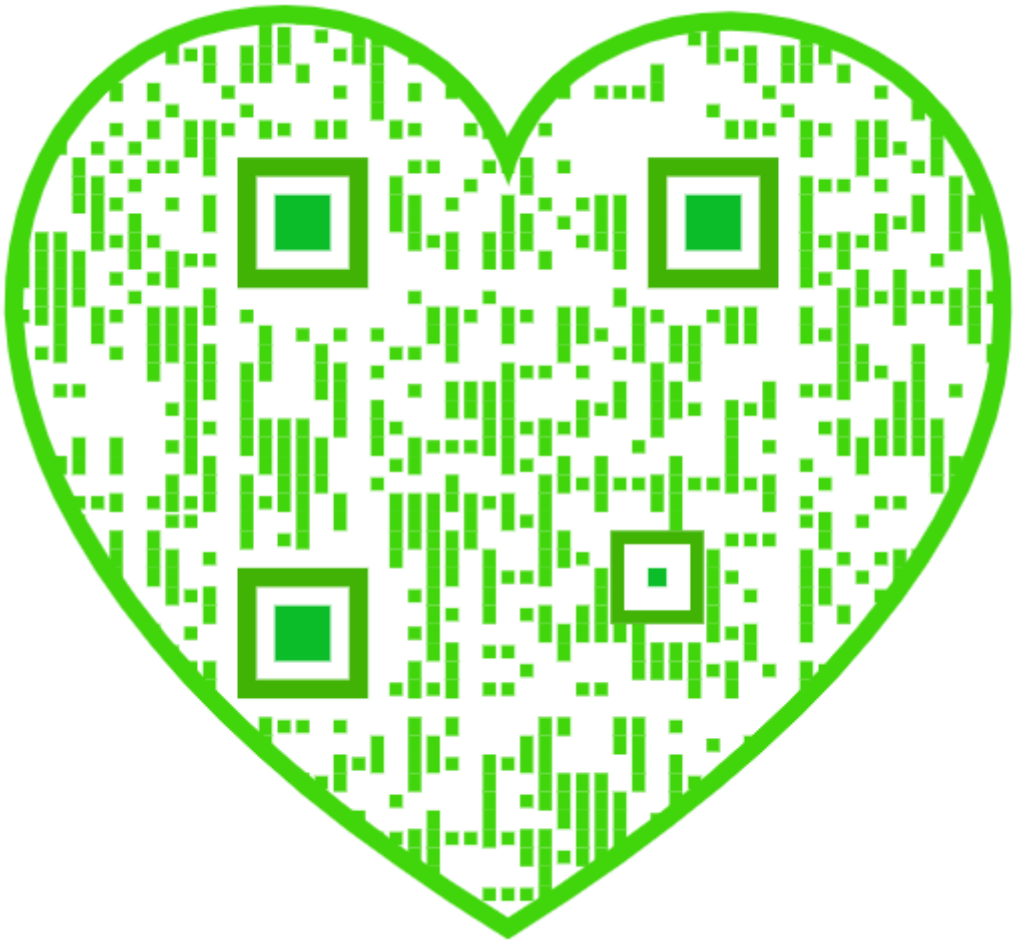

EDIBLE

AND

POISONOUS MUSHROOMS.

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POISONOUS MUSHROOMS:

WHAT TO EAT AND WHAT TO AVOID.

BY

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AUTHOR OF "HANDBOOK OF BRITISH FUNGI," "FUNGI: THEIR NATURE, USES," "TOILERS IN THE SEA," ETC.

WITH EIGHTEEN COLOURED PLATES ILLUSTRATING FORTY-EIGHT SPECIES.

ROYAL BOTANICAL GARDEN

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POISONOUS MUSHROOMS.

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PREAMBLE.

It is an accepted fact that some fungi of the mushroom type are poisonous, whilst others are edible, but the problem to be solved is, which are good, and which are bad. To assist in the solution we have given an unusual quantity of coloured illustrations of both kinds, and from these, in combination with a few practical observations, we hope to render a satisfactory answer. It must, at the outset, be understood that there are no general rules, capable of universal application, whereby edible may at once be distinguished from poisonous fungi. Our task would be an easy one if such a "royal road" could be discovered, but unfortunately every effort

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to apply general rules has failed, and no possible course remains but to become acquainted with every individual species which we resolve to eat, and, collaterally, those which we should specially avoid. It may not be out of place to remark that there are some features manifested in connection with poisonous or disagreeable fungi which should be borne in mind, as tending to diminish labour in investigation. For instance, it may be concluded that fungi which possess a distinctly disagreeable odour may be discarded at once as unwholesome. Then, again, any kinds, the flesh of which, when cut or bruised, distinctly changes colour, especially to a dark blue, should be avoided. Even the Common Mushroom will sometimes turn brown when cut, and some other of the edible species will show a slight change, but it is the immediate and rapid change to a deep blue which should be accepted as a paramount signal of danger. It may safely be concluded that any species of

which a small fragment when eaten raw is biting and unpleasant, is not worthy of experiment, and in the majority of instances will prove deleterious when cooked. Another precaution may be added, that such fungi as contain a milky juice, which exudes freely on being cut or wounded, should not be eaten without careful determination. Once for all, it must be insisted upon, that in order to avoid danger, no fungi should be eaten at random, and only those which, after careful examination, are found to agree with figure and description, unless practically well known, should be prepared for the table. No method is so safe as that which consists in mastering the characteristics of a few species, especially when pointed out by one who is practically conversant with them, and increasing the number with experience. There are certainly some seventy or eighty common species to be found in this country which may be eaten with safety, but if only ten or twelve of these are well known, they

will furnish all the variety which an ordinary person will require. We have ourselves eaten of more than sixty different species, and yet seldom eat of more than from six to ten in any given year. Experiments in eating unknown fungi, or those concerning which any doubt exists, should on no account be encouraged. We may not possess so many truly poisonous species as has been supposed, but that we *do* possess some is an undoubted fact, and it should be remembered as a caution. Thorough and persistent fungus-eaters never experiment upon unknown species, but only upon those which are known by experience to be harmless, or which by their natural affinities afford no possible reason for doubt.

Characteristic and accurate figures are a great help in the determination of species, but figures alone are scarcely sufficient for the inexperienced, and should always be supplemented by a reference to the written description. Features of importance may

be overlooked in scanning a figure, but these may be emphasized in the description. Moreover, there are features which cannot be represented in diagrammatic form, which may nevertheless be very evident in the fungus itself, such as viscidity, odour, and taste.

With one or two exceptions all the figures are representations of fungi which possess a stem and a pileus, or cap. However much these may vary in size and form, they are nevertheless present. In the majority of instances the cap, which surmounts the stem, is furnished on the under surface with numerous parallel plates, or gills, which radiate from the stem to the margin of the cap. The Common Mushroom is one of this type of gill-bearing fungi. There are, however, a few illustrations of species in which the gills are replaced by pores, the whole under surface of the cap being even, and punctured with very numerous little holes, as if pricked with a pin, and these are the pore-bearing fungi, of which

the Edible Boletus is the type. One other example, that of the Hedgehog Mushroom, illustrates a type in which the gills, or pores, are replaced by teeth, or spines, which beset the whole of the under surface of the pileus, or cap. These three groups may be distinguished from each other by features which are distinct and unmistakable, so that there need not to be a moment's hesitation in their application. The few additional forms which do not conform to any of these groups need not be mentioned here, but will be described hereafter under their separate names.

Reverting to the original definition, in which a stem and pileus, or cap, are the two elements, we must remark that, in the gill-bearing fungi, this stem may have a ring or collar surrounding it near the apex, or the ring may be entirely absent. This is an important feature in the discrimination of species, since it forms a part of the specific character. It is present in the Common Mushroom, but it is absent in the

Blewits, not by accident, but persistently. Herein, then, we have one valuable guide in the discrimination of species. Furthermore, the base of the stem, in a few instances, is enclosed in a sheath, or volva, which may be comparatively loose, and distinct, as in the Buff Warty Caps, or it may be closely adherent, showing only a circular line or ring, as in the Ruddy Warty Caps and the Fly Agaric. This, again, is peculiar only to certain species, and should be borne in mind. Appertaining to the stem, it may be observed that it is often desirable, when the name of a species has to be determined, to cut the stem longitudinally down the middle, and by this means it will be found that in some species the stem is hollow in the centre, whilst in others the stem is solid. All these are points which should be borne in mind by those who have no desire to poison themselves.

One other point is of equal importance to, if not greater than any which we have

named, and that is the colour of the spores produced by each species. When any of the gill-bearing fungi are expanded, and near maturity, the gills will be observed to vary in colour, some being white, and others of almost any tint of grey, or brown, to black. But the colour of the gills must not be relied upon as that of the spores, for in some cases the gills may be more or less coloured, whilst the spores remain white. To ascertain accurately the colour of the spores, the stem should be cut off close to the under-side of the cap, and then the severed cap should be placed, with the gills downward, upon a sheet of paper, and permitted to remain in that position all night. In the morning the spores will have fallen from the gills upon the paper, outlining the form of the cap, and showing the radiating lines of the gills. If the spores are believed to be white, or light-coloured, opaque black paper should be employed; but if very dark, or black, then white paper should be used. This enables

the colour to be more accurately determined. The whole series of colour may be classed in five groups—white, pink or salmon, rusty-brown, purple-brown, and black. Of course the shades will vary in most of the groups, but especially in the second and third. It is most important that the colour of the spores should be determined first of all, and then it will be less difficult to discover the species to which they belong. A great number of the species with white spores are edible, but some are dangerous, so that the colour of the spores is not a test of quality. Again, most of the species with pink or salmon-coloured spores are suspicious, whilst two or three are excellent food. Take, for example, the Common Mushroom, which when young has the gills of a beautiful pink colour; as it becomes older the gills darken, and when the spores are ripe enough to fall, they are *not* pink, but purple-brown. If an inexperienced person finds a species of "mushroom," or fungus of the mushroom type, with pink

gills, and thinks, on that account, it must be the Common Mushroom, this method should be tried, and the colour of the spores ascertained, for if the spores are pinkish, then the fungus in question is not the true mushroom, and is possibly dangerous; but if the spores are dark purple-brown, notwithstanding that the gills were at first pink, then it is perfectly safe. So that the colour of the spores is a question of importance, and should not be neglected, supposing, of course, that the person interested is not perfectly sure, from experience, that the right species is under observation. We have actually known persons mistake white or pink-spored Agarics for mushrooms, which they could not have done had they paid attention to the colour of the spores. In another instance we remember a foolish youth cooking and eating a small species with rust-coloured spores, under the impression that they were the Fairy Ring Champignon, which latter has white spores. Fortunately, in this case,

the fungus eaten was not a poisonous one, but no one had ever tested it, and it was regarded with suspicion.

It is a popular error that a "mushroom" may be distinguished from a "toadstool" by the cuticle of the cap. Some persons hold that if the cuticle, or skin, of the cap or pileus can be stripped off readily, then the fungus in question is an edible mushroom; but if it cannot be stripped off, in that case it is poisonous. The cuticle is certainly separable in the mushroom, both wild and cultivated, but in numerous instances where it is separable in other species, they are certainly dangerous; whereas in some excellent species, which are constantly eaten, there is no separable cuticle. A wag was once heard to declare that he knew of only one universal and infallible method for determining an edible from a poisonous mushroom, and that was by eating it. If it did you *no* harm it was edible, but if it killed you, or made you ill, then it was unfit for food. Against this experimental method

we take exception in favour of *à priori* determination.

It should be borne in mind that fungi which grow upon trees are not likely to be found growing on the ground, and that those which inhabit pastures should not be sought in woods. In most species there is a great persistence in habit, and, notwithstanding some variability in form, size, and colour, comparative permanence in character, or in such characters as are relied upon for the discrimination of species. A species which possesses a ring upon the stem, for instance, or warts upon the pileus, always has them, unless denuded by accident. Hence the different species may be distinguished by specific characters, as in plants of a higher organization, so that the ordinary process of determination, as employed in other departments of botany, is equally applicable here, and the results are equally satisfactory.

The assumption that fungi of the same species, growing in different localities, may

be so modified by circumstances as to lose or acquire poisonous properties, has not been established. One of our most virulent native species has undoubtedly been eaten in Russia with no disagreeable results, but there is no evidence that the character of the fungus had changed, whilst there is every reason to believe that the process of cooking adopted was calculated to produce such results. It is very probable that the poisonous principle existing in any fungus, as it is grown, may be neutralized by the use of acids or alkalies. Fungi of the mushroom type grow rapidly, and rapidly decay. Chemical change taking place so readily, it is important that this class of food should be cooked as speedily as possible after it is gathered, before any appreciable change takes place. It is by no means certain that stale mushrooms are innocuous, and, in some cases where mushrooms have been accused of producing unpleasant effects on delicate constitutions, it is possible that the cause was not in

the mushrooms originally, but was developed by incipient decay.

We would fain dispel the illusion that the Common Mushroom is the type to which all edible fungi must conform, and that all others should be compared with it. There are some which are of the same flavour, or closely resemble it, whilst there are others of a wholly different kind. Much disappointment is liable to follow if, in all cases, it is expected to meet with the mushroom in some modified form. There is as much difference in the peculiar flavour of different species as there is in the different kinds of flesh. No one would be satisfied if veal tasted like mutton, or roast pork like roast beef, and there is just as much difference in the various kinds of edible fungi. In some of them the flavour is completely novel, and produces a new sensation—for instance, there is not the least resemblance between the Puff Ball and the ordinary mushroom, or between the latter and the Hedgehog. It is in

this great variety that much of the charm lies, otherwise it would be better to adhere to the ordinary mushroom than venture upon others which would be no better than substitutes. In tasting of a new dish, therefore, it is better to forget the old one for the time, and expect to partake of something which has to rest upon its own merits, and not upon its resemblance to anything else.

As a natural consequence of this variety of flavour, it is essential that each species should be used by itself, and not mixed, several kinds together, in a sort of hotch-potch, where no particular flavour prevails, but all are reduced to a horrible mediocrity. A professed fungus-eater would no more think of sitting down to a dish compounded indiscriminately of half-a-dozen species, than would a gourmet of mixing his wines, or combining his venison with his salmon and turkey.

Much of the excellence of a dish of fungi depends upon the cook, for a bad cook

will spoil the best dish that was ever invented. It is no part of our present design to give special instructions in the art of cooking mushrooms, but there is an *art* in it which makes all the difference. Frankly, the ordinary domestic cook, without special experience, never succeeds well even with the Common Mushroom; it requires a kitchen genius to present them at their best. We never deemed it possible for Chantarelles to be so delicious as we tasted them once, when manipulated by an old cook from a Swiss Hotel, who chanced to be in the way, and volunteered to undertake the task *con amore*. It has been said that "mushrooms are the gift of Nature, but a good cook is the gift of God."

In uttering a protest against grilling, or frying in an open pan, so that much of the aroma and flavour disappears up the chimney, we may suggest an improved method, which is applicable to many kinds. Lay the mushrooms, when wiped, sliced, or otherwise prepared, in a shallow dish,

sprinkle with salt and pepper, and place a small piece of butter on each, cover closely with a plate, and place them in an oven, so that they are cooked gradually, and all the aroma and flavour is retained. Serve them hot, in the same dish, and without uncovering. Even this method is not equally good for every kind, but it is the only general one which we can recommend.

Finally, we must assume that all who use this little book will have arrived at the age of discretion, and that there is no occasion to urge upon them the exercise of common-sense. Punishment will follow inordinate indulgence in any of the good things of this life, and those who disregard reason, and are intemperate in eating fungi, must expect to suffer from repletion and indigestion. It is essential to insist upon an avoidance of all unknown or doubtful kinds Ordinary care and judgment are sufficient to avoid danger, but so many persons neglect ordinary care and tempt misfortune by indiscretion, that it is necessary to

repeat caution against foolish experiments. Be sure to know and distinguish your mushrooms first, and eat them afterwards, but do not rely upon a fancied external appearance, without comparing them with the written description, unless they have been guaranteed and recommended by some competent person. There is no more danger of eating bad fungi than of eating bad fish, if the same amount of discrimination is exercised. Better to be too timid, as some are, and refuse to eat mushrooms at all, than to be too reckless, and neglect the simplest precautions to ensure safety.

EDIBLE AND POISONOUS MUSHROOMS.

EDIBLE MUSHROOMS.

The number of kinds here enumerated is comparatively small, but it includes all the best, the most available, and indeed all that are essential to be popularly known, of the two hundred, and upwards, of edible species hitherto known to have occurred in the British Islands. The residue consists of such kinds as are of inferior quality, and largely of species which have been found so rarely that their mention could have served no useful purpose. Undoubtedly it is more satisfactory that some twenty or thirty sound species should be known and recognized, especially if sufficiently common to

be within the reach of all, than that even three times that number should have been described, which perhaps have never been met with but two or three times, and may possibly never occur again. It may be taken for granted that no species has been omitted which can be favourably recommended, or which is sufficiently common to be encountered, in ordinarily favourable seasons, in congenial localities. Again, it is urged on all to learn to discriminate a few of the very best kinds, without fear of error, and confine attention to those, and neglect the rest.

RUDDY WARTY CAPS.

Agaricus (*Amanita*) *rubescens.*

(Plate I. Fig. 1.)

This excellent esculent is one of the commonest, under trees, from early summer to late autumn. The cap is of a peculiar reddish-grey colour, sprinkled with numerous paler warts. The substance is firm and robust, at first whitish, then tinged with red, especially where touched or bruised, and at the basis of the stem, where an obscure scaly circle represents the margin of the adnate volva. The stem is thick, tapering upwards, having near the apex a large white pendulous collar, or ring. The gills are broad, reaching nearly to the stem, but not attached to it, white at first, but turning reddish when bruised. The tone of red is that of brick-red, and not scarlet or crimson. Sometimes it will stand about five inches high, with an expanded cap of three or four inches. The flesh is very

susceptible of becoming "maggoty" when old, and it should always be collected for the table before the cap is fully expanded, and then it is perfectly wholesome. The flavour is mild, but both in odour and taste less aromatic than the Common Mushroom. Although the younger specimens, when the cap is hemispherical, are to be preferred for cooking, the older and more expanded, when not attacked by insects, will make excellent ketchup. There is no fear of confounding the present with any other species if only ordinary care is exercised, and we have never heard of its disagreeing with any one who has partaken of it.

DELICIOUS MILK-MUSHROOM.

Lactarius deliciosus.

(Plate I. Fig. 2.)

The Milk-Mushrooms (*Lactarius*) differ from all others in containing a white, or coloured, milk, which oozes out freely when cut or wounded. The present species only grows under fir-trees, somewhat earlier than the general crop of fungi, being in greatest plenty about August or early in September. It is firm and solid in texture, with a very short stem, so that the cap is close to the ground, about two or three inches in diameter, pale brick-red, with a tinge of orange, usually marked with darker zones; the centre of the cap is depressed, and the margins curved inwards. The whole plant abounds with an orange milk, which exudes when cut or wounded, and on exposure soon turns green, so that the fungus appears to be stained green. There is no other fungus possessing an orange milk which becomes

green. This milk, and the mushroom itself, has a rather biting taste when fresh, but this disappears with cooking. It requires great care and delicacy in cooking or it becomes tough and indigestible, but with good manipulation it furnishes a delicious dish. The most successful method is that of cutting into uniform segments, and placing the pieces in a dish, with pepper and salt, and a small piece of butter to every group. Cover the dish, and bake very gently for three-quarters of an hour, without uncovering, to be served at once in the same hot dish. There are other methods, but, in all, the golden rule is to cook gradually and slowly, and serve hot.

COMMON MUSHROOM.

Agaricus (*Psalliota*) *campestris.*

(Plate I. Fig. 3.)

Very little description is needed for this well-known species, the marvel being how any one can possibly confound it with any other kind, and yet we read occasionally of mishaps from eating something else in mistake. The stem is surrounded by a well-defined collar or ring, the gills are of a delicate pink when young, becoming at length of a deep brown; the cap is sometimes smooth and sometimes more or less scaly, with a separable cuticle; the odour is distinct and fragrant, and the taste, when raw, nutty and pleasant. The kind sold so commonly by greengrocers in London, by no means attractive in appearance, consists for the most part of the Horse Mushroom. In the markets of provincial towns we have only seen the true mushroom exposed for sale, as the Horse Mushroom is considered

by country people as only fit for ketchup. The price varies in London, as elsewhere. We have been asked $2\frac{1}{2}d.$ per pound in Hereford Market on one day, and found an inferior article being sold in London the next day at eightpence per pound. We have noted the price in Paris on two or three occasions, and found it one-half the price demanded in London at the same time, where, one year in particular, the price was ranging from one shilling and eightpence to two shillings per pound in Covent Garden Market. It is the general opinion with connoisseurs that the wild mushroom is much more delicate and of better flavour than the cultivated varieties, and less liable to disagree with delicate stomachs. Occasionally a dark-brown scaly-capped variety may be found in parks, with pink gills, which is scarcely wholesome.

Rooby Warted Cap.
Deformed
Male
Mushroom
Common
Mushroom

PARASOL MUSHROOM.

Agaricus (Lepiota) procerus.

(Plate II. Fig. 1.)

The Parasol Mushroom is so designated from its erect, straight, slender stem and expanded cap, not very unlike the object after which it derives its name. It is not uncommon in summer and early autumn, mostly amongst dead leaves, and occasionally attains a large size, with a stem ten inches long, and a cap six inches broad. Sometimes it will be found in pastures and under trees, and is of a very dry texture, shrivelling when old before it decays. The top of the pileus is conical and dark, but the rest is paler and silky, covered with scattered darker scaly patches. The gills are white and broad, narrowed towards each end, and not reaching the stem, which consequently appears to be sunk into the cap, with a hollow all round it. The base of the stem is bulbous, and, for some

distance up it, is marked with striate, irregular bands; above the middle the stem is girt by a large collar or ring, which at length frees itself from the stem. The spores, like the gills, are white. The flesh is white, and rather soft, with a tendency to change colour when exposed to the air, and the centre of the stem is hollow. Divested of the stem, and a little butter put in its place, with pepper and salt, it may be grilled and served on toast, when it forms a pleasing breakfast dish, hardly to be surpassed by any of our ordinary species. The flavour is mild and delicate, with the odour of the mushroom when brought to the table. As far as our experience goes, it is a universal favourite.

ST. GEORGE'S MUSHROOM.

Agaricus (*Tricholoma*) *gambosus.*

(Plate II. Fig. 2.)

There are not many mushrooms in the spring, and to possess a really good substitute on St. George's Day is a decided advantage, only that the St. George's Mushroom appears to be provokingly local. The cap reaches to three or four inches in diameter, and it is of a creamy whiteness in every part, sometimes with a darker tinge on the top of the cap. Altogether, it is of a robust habit, and a peculiarly strong odour, more penetrating than that of any other mushroom with which we are acquainted. It comes up in rings on rich pastures, and even the spawn, or mycelium, possesses the strong odour. The margin of the pileus has a constant tendency to curve inwards, the gills and spores are white, and the stem has no trace of a collar, or ring. There is an abundance of thick

flesh, which is about an inch thick in the centre of the pileus, and remarkably firm; it may even be cut in slices and dried for winter use. On one occasion a good friend in the north sent us a hamper of specimens for the table, as it is rare in the neighbourhood of London, but the odour was so powerful and oppressive that the house was soon filled with it, and we were compelled to transfer the mushrooms to an outhouse until the hour of sacrifice arrived. The nearest species with which it can be compared is the Blewits, but the latter is an autumnal, and this a spring species. Moreover, there is no tinge of lilac in the St. George's Mushroom, and the odour of the Blewits is far less intense.

EDIBLE MUSHROOMS.

BLUE CAPS.

Agaricus (*Tricholoma*) *nudus.*

(Plate III. Fig. 1.)

The Blue Caps are mostly found, growing in company, amongst dead leaves, or even on the ground, in woods and shady places. The entire plant, when well grown, is of a beautiful lilac colour, but the top of the cap soon shows a tendency to turn of a dull reddish, or vinous colour. Usually the cap is from two to three inches in diameter, but we have seen them attain to six inches, often contorted through growing in tufts. The spores are white, and the stem has no collar or ring. The flesh is firm and solid, of the same tint, but paler than the exterior, and there is a slight mealy odour. This species is often found with the Dusky Caps, but is commonly smaller, and of a different colour, although there is a great similarity in flavour when cooked. The tone of colour is never a decided blue,

but almost amethystine. Dead leaves which have drifted into a ditch, or have accumulated in heaps to rot, in the corners of large gardens and recreation grounds, are favourite localities for these two species. We have always preferred specimens before they are quite fully grown, or the lilac colour changes to vinous red, for the table, and then they are mild and luscious, especially when grilled and served on toast. It must be remembered that as fruits differ from each other in flavour, according to the species or varieties, so also do the edible fungi, and that the flavour of one species is not found in another, so that no single species can be set up as a standard for comparison. Fruits that are not peaches, or apricots, may be very good plums.

FAIRY RING CHAMPIGNON.

Marasmius oreades.

(Plate III. Fig. 2.)

This species is extensively known, growing in clusters, and forming rings, or parts of rings, on lawns, and in old pastures, sometimes by the roadsides, but not in woods. It is rather an early species, being found in summer, and becoming rare in September. Its whole substance is dry and elastic, but not fragile; a dozen may be carried in the pocket without breaking, and it dries so readily that it may be kept for winter use. Its usual size is about one inch in diameter of the cap, but sometimes double that size. The pileus is convex, with a little depression round the centre, and of a pale tan-colour when moist, or warm ochre when dry. The stem is slender, equal, solid, and white, very faintly woolly, but naked at the base. The gills are broad, rather distant apart, with shorter ones between, and nearly

white, or with a faint tinge of pale primrose, the spores being white. There is a peculiar fragrance, not distinctly sweet-scented, but rather "mushroomy," and the flavour is mild. The dry substance of the entire fungus is an indication that care must be employed in cooking to prevent its becoming tough. Some persons are more enthusiastic than ourselves in adulation of this esculent, and have declared it to be "the very best of all our fungi." It is most useful for flavouring, will furnish an excellent white sauce akin to ketchup, is invariably safe, but is better for immediate use when collected in moist weather, and then, broiled in butter, it is highly commended. With common-sense and moderate care it is hardly possible to confound it with any other species.

BLEWITS.

Agaricus (*Tricholoma*) *personatus.*

(Plate III. Fig. 3.)

In external form and size, the Blewits resembles the Common Mushroom, but with these important differences, that the gills are whitish, and the spores are white; the stem has no collar, or ring, and is tinged with lilac. It more nearly resembles the St. George's Mushroom, only that it is autumnal; commonly it is about three inches across, and is to be found on downs and short pastures. The flesh is thick and firm, with a mushroomy odour. The top of the pileus is generally greyish, and quite smooth, and it absorbs water very readily, so as to become sodden in wet weather, and then of but little account. It has been stated that it was formerly sold in Covent Garden Market, but that has not been the case during the past forty years; nevertheless it is commonly sold, under the name of

Blewits, in Nottingham Market at the present day, and is recognized and eaten by the inhabitants. It is not every one who will approve of this species, as it has a rather peculiar flavour, but when collected in dry weather it will be the fault of the cook if it does not furnish an appetizing meal. We are not at all sure that the complaint which has been urged against it may not be true—that it is heavy, and not so easy of digestion as some other species. It is easy of recognition, and the Nottingham people will bear testimony to its good character.

Since the above was written we have had ocular demonstration that it is possible for this species to be found in April, but the specimens were small.

EDIBLE MUSHROOMS

DUSKY CAPS.

Agaricus (*Clitocybe*) *nebularis.*

(Plate IV. Fig. 1.)

The Dusky Caps are not uncommon late in autumn, mostly growing on dead leaves on the borders of woods, or on rubbish heaps in the corners of large gardens. The cap is of a cloudy grey colour, and from three to six inches in diameter, soon becoming nearly flat, and often with a frosted surface, as if dusted with flour. The gills run for a considerable distance down the stem, which latter is a little thickened at the base, and wholly deficient of a ring. The gills and spores are white. When cut in section the white flesh is seen to be firm and thick, and it has a heavy but not disagreeable odour. Nearly always a number of specimens will be found growing together, so that we have seen sufficient to fill a bushel basket within the space of two or three square yards. Another brighter

coloured species, the Blue Caps, is often found with it in the same localities. Some Continental writers have expressed a doubt as to its esculent qualities, but we have eaten of it more than of almost any other wild species, and found it constantly agreeable, and perfectly safe. For a breakfast relish we have always relied upon this, the Parasol Mushroom, the Ruddy Warty Caps, and the Shaggy Caps as the most available and satisfactory. We have eaten of the present species a fortnight before Christmas, in one eventful year, when the frosts were not severe. One or two correspondents have complained of the heaviness of this species, and that it produces a feeling akin to dyspepsia; but we have had no such experience, after consuming it almost daily for a fortnight.

VEGETABLE BEEF-STEAK.

Fistulina hepatica.

(Plate IV. Fig. 2.)

Ox-tongue, Tree-liver, or Vegetable Beef-steak, are all names which have been applied to this esculent, which is found in autumn growing out of the trunk of very old oaks. Year after year it has been known to appear on the same tree, of course upon a decaying spot, and then it is not unlike a large tongue, or a piece of liver thrust out from the tree, and exuding a juice when wounded. The upper surface is rather sticky and liver-coloured, the under surface paler and flesh-coloured; when cut the inner substance is mottled, resembling beet-root. There are no gills, but the under surface is composed of little tubes, glued together side by side, almost like those of a Boletus, but separating more easily. In some places the flesh is sliced when raw, and eaten in salads like beet.

The more usual method is to employ it cooked as a sauce, for it is not of a kind suitable to eat by itself, but when cut in slices and broiled with steak it gives an excellent sauce. There is no resemblance whatever to the mushroom flavour, or odour, but a slight acidity of taste; with that exception, it is most like beef gravy. It differs in another respect from all other fungi, that it is in its prime for cooking when thoroughly matured and almost verging on decay. When very young it is disagreeable, and, until quite mature, will retain some astringency, suggesting the tannin of the oak.

EDIBLE MUSHROOMS

HORSE MUSHROOM.

Agaricus (*Psalliota*) *arvensis.*

(Plate V. Fig. 1.)

The Horse Mushroom is larger than the Common Mushroom, and the gills are not at first pink, but of a dirty white. We have found it to be the common species in marshes, where it will reach a diameter of from seven to nine inches, and more; growing occasionally in rings, or parts of rings, and with a much stronger odour than the Common Mushroom. The cap is quite smooth, and soft like kid-leather, with a yellowish tint, and no indication of scales. The stem has a large, ragged collar or ring, and the interior is spongy at the centre. It has a tendency to become pale brownish when cut or bruised. For eating, these caps are certainly to be preferred before they are fully expanded and flattened. The stem and the thick centre of the cap are liable to be perforated by insects, and

become "worm-eaten" when they are fully matured. This is the species commonly sold as "mushrooms" in London, except the cultivated varieties, which are found in the best places and at the best prices. It is preferred in country districts for ketchup, where it is seldom eaten, on the ground that it is coarse and strong. Some of the most experienced of fungus-eaters prefer it, however, to every other species, excepting the rare *Agaricus Elvensis*, which is acknowledged to be the "mushroom royal." It must be remembered that neither this species nor the Common Mushroom grow habitually in woods, but in open grassy places, old pastures, parks, and meadows.

HEDGEHOG MUSHROOM.

Hydnum repandum.

(Plate V. Fig. 2.)

The Hedgehog Mushroom furnishes an example of a very different type of structure to that of the Common Mushroom, in that the under surface of the pileus, which in the mushroom is occupied by gills, is in this instance replaced by spines, thickly set together, and finally covered with spores. This fungus grows in woods and by shady roadsides in the autumn. It is entirely of one colour, which is something of a pinkish-cream colour, and the pileus is seldom regular, often lobed, contorted, and tuberculose; sometimes two or three individuals are confluent into one; the stem is rather thick, solid, and irregular. The spines being attended to, it is scarcely possible to confound this with any other species. It is peppery to the taste when raw, in which condition we have known

of thin slices being inserted in a meat sandwich. When cooked, there still remains a little of the original pungency, unless the fungus is sliced and steeped in water all night, which some regard as an improvement. In this instance also, as in one or two others which we have alluded to, the flavour is entirely different from, and cannot be compared with, that of the ordinary mushroom. The Hedgehog is probably more suited as a condiment, or as an addition to stews, than as a separate dish, although in the latter condition we consider it irreproachable. Stewed in milk, we have known it served at a public dinner. It is one of the species which may be sliced and dried for winter consumption.

IVORY CAPS.

Hygrophorus virgineus.

(Plate V. Fig. 3.)

This is one of the snowy white species which ornament lawns, and short pastures, in the autumn for some time after the appearance of frost. Most of them are covered with a viscid moisture, like gum-water, and it is probably that which protects them from injury by the light frosts. This is comparatively small, commonly about one inch across the pileus, but occasionally two or three inches. The gills are broad, wide apart, and veined, and the spores are quite white. The stem is short, but firm, attenuated downwards, and the gills run about half-way down. We have never detected any odour, and the taste is mild. There is no doubt that all these white species, which are in the habit of decorating lawns in the latter part of the year, are quite harmless, and some of them delicate

and pleasant, but a great number must be collected to furnish a moderate dish, and hence they are not often consigned to the kitchen, save in the absence of larger species. A large and bright-red species, with a conical cap (*Hygrophorus coccineus*), and gills inclining to orange, affords a mild and delicate dish, but the quantity is generally limited.

EDIBLE MUSHROOMS.

INKY MUSHROOM.

Coprinus atramentarius.

(Plate VI. Fig. 1.)

Of all edible species this is probably the one to which a novice would take exception, as being so utterly a "toadstool" in appearance as to banish all desire to test its qualities. In this instance, as in some others, a foregone conclusion would prove to be wrong, for, notwithstanding its weird and uncanny look, it is but little, if at all, inferior to the Shaggy Caps, to which it is closely related. The group to which it belongs has the peculiarity that when the spores are quite mature the gills dissolve and fall away like drops of ink. Clusters of this fungus, densely packed together, spring from buried wood, or the bottom of old posts. The cap is bell-shaped, of a smooth shining grey, almost mouse-colour, perched on the top of a long white stem. Sometimes the cap is as large as an inverted

teacup, often no larger than a wine-glass; the broad gills at first are dirty white, gradually growing deeper in colour until they become black. Before the gills lose their pale colour they are in their prime for culinary purposes, and should be wiped clean from sand, and committed to the tender mercies of the cook. This is one of the few species which a bad cook can hardly spoil, for it is good any way, and cannot be rendered tough by bad treatment. Stewed or grilled, and served on toast, it has much of the mushroom flavour and odour; but mixed with a hash, or stewed with kidneys, it is irreproachable. The black fluid into which the gills dissolve themselves may be employed as ink, with the addition of a little gum-water.

SHAGGY CAPS.

Coprinus comatus.

(Plate VI. Fig. 2.)

This is one of the best of edibles, and common enough everywhere, especially on waste ground and on building plots in the midst of civilization. Gutter-boys delight to kick it about, and consider themselves the benefactors of their race. It generally grows in clusters, with a long whitish, shaggy cap, contracted at the bottom for a long time, but at length expanded. The gills at first are whitish, then tinged with pink—it is then at its prime; at length the gills turn black, the cap expands, and finally dissolves away, in a black slimy drip, like thick ink. In all the species of *Coprinus* the gills dissolve into an inky fluid when fully mature, and the spores are quite black. There is a strong prejudice against this species as a "toadstool," but it is almost unequalled

when in its prime, and before the gills turn black. It will sometimes be found by roadsides, and even in pastures, and is tender and delicious cooked in any way. The cap and stem is occasionally eight or nine inches high, not uncommonly five or six, and, as there is nothing else which resembles it, there can be little doubt or hesitation in eating it, for even children can soon distinguish it. It is apt to be gritty unless wiped clean before cooking; when it is too ripe for this purpose, it may still be converted into excellent ketchup, far superior to much that is sold under that name. It is deservedly a favourite with every one who summons the courage to test its edible qualities.

LITTLE IVORY CAPS.

Hygrophorus niveus.

(Plate VI. Fig. 3.)

In many respects the Little Ivory Caps resemble the Ivory Caps, but are much smaller, and more slender. This species is found also amongst short grass, on lawns and pastures, and is perfectly white in all its parts. In moist weather it is rather sticky, which is scarcely observable when dry. The cap seldom exceeds half an inch in diameter, and the distant gills are gradually attenuated downwards into the slender stem. From its small size it can hardly claim much consideration as an edible species, but both the species of Ivory Caps may be mixed together in making up a dish, and as a lawn may sometimes furnish some hundreds of specimens of the two kinds, it may sometimes be possible to obtain sufficient for the kitchen.

We may enumerate here another, and

similar, little white species (*Hygrophorus russo-coriaceus*), which is remarkable for possessing the peculiar odour of Russia leather. It is found in like localities, but is not common, and may possibly be edible, but we are not aware that it has ever been tested.

Personally we do not place any of these species of white *Hygrophorus* in a high rank as esculents, and they certainly will not commend themselves to persons who prefer full-flavoured mushrooms. Unless cooked with care and delicacy, they will possess very little flavour or aroma, but they have the merit of being absolutely harmless, and can hardly be confounded with any other known species.

ECIBLE MUSHROOMS

GIANT PUFF BALL.

Lycoperdon bovista.

(Plate VII. Fig. 1.)

Since we commenced the advocacy, in this country, of the Giant Puff Ball as an article of food, now thirty years ago, we have made many converts, but have never found a single instance in which it was not highly approved when once tasted. Some few enthusiasts have declared it superior to any other form of fungus food. Occasionally it may be found not larger than a double fist, but usually as big as a man's head, and, rarely, three feet in diameter. It occurs in rich pastures and on the borders of corn-fields in harvest-time, when it is of a creamy whiteness, with a skin as smooth as a kid glove. When cut the interior should be of a beautiful snowy white, without any tendency to turn yellow. As soon as the flesh shows any sign of changing colour, it is liable to produce derangement of the

stomach, and should be rejected. At length, when quite matured, the interior becomes a powdery mass of threads and spores of a yellowish-olive colour, when it is good for nothing but staunching blood or stifling bees. When a specimen is found in a satisfactory state, it should be cut in slices, a quarter of an inch thick, like pancakes, smeared with beaten egg, and dusted with bread crumbs, then fried in butter or good fat, until still more resembling a pancake or omelet in colour. It may be eaten by itself, or with fried ham; and although with a distinct and unique flavour of its own, wholly unlike any other edible mushroom, it is universally pronounced delicious. We have known specimens to grow amongst cabbages in a kitchen garden, and when such is the case it may be left standing, slices being cut off as required until the whole is consumed.

SWEETBREAD MUSHROOM.

Agaricus (*Clitopilus*) *orcella.*

(Plate VII. Fig. 2.)

There are a pair of mushrooms which resemble each other so closely that many persons believe them to be only varieties. Both of them are unique in possessing pinkish spores; both have a mealy odour, with a satiny white cap, tending to a very pale grey. The Sweetbread (*Ag. orcella*) is said to be the more delicate of the two, with a thin, irregular, depressed pileus, two or three inches in diameter. In moist weather the surface is a little sticky, but it is always soft. It grows in woods, or on their borders, between June and September, and may always be recognized amongst white species by its strong mealy odour. The stem is short, expanding into the gills, which run a long way down, and are at first white, but at length assume a peculiar pale greyish-pink colour, becoming rather

brownish when quite old. The other, or Plum Mushroom (*Ag. prunulus*), is rather more regularly shaped and fleshy, and grows also in woods, preferring shady places, whilst the other grows in the open. In other respects it is difficult to point out distinctions between the two. Both are most excellent, and favourite articles of food with fungus-eaters, being compared to "sweetbread." They are usually placed with butter in a covered dish, sprinkled with pepper and salt, and set in a slow oven, being kept covered to preserve the aroma. Anything in the nature of stewing spoils them. Some mycophagists consider them superior to every other species.

HORN OF PLENTY.

Craterellus cornucopioides.

(Plate VII. Fig. 3.)

No edible fungus is so unattractive as this, which we neglected for years, but at length discovered that we had been deceived by appearances, and had passed over an excellent addition to the table. It is not one of the gill-bearing fungi at all, and belongs to a large group which contains hardly another edible species, but many as tough as leather. The above is found on the ground in woods, sometimes in profusion in late autumn, and has the peculiar form of a sort of trumpet, expanding gradually from the base to the apex, with the margin bent back at the mouth. It is three or four inches high, with the mouth, and interior, brownish or olive, or sooty, and rather scaly; the exterior smooth, or nearly so, with a few depressions, greyish, bearing the spores on all parts of the surface, without gills, pores, or spines.

The substance is everywhere thin and flexible, and there is hardly any perceptible odour. When intended for cooking, the horns should be split open through their entire length, and washed free of all grit, which is sure to accumulate at the bottom. When dried the pieces should be placed in a stew-pan, with salt and pepper, a little water, or gravy, and stewed gently until soft, then thickened with flour, with the addition of a little chopped parsley if desirable. The aroma and flavour is decidedly suggestive of the Common Mushroom, and, as bushels decay every year, it is a pity that the Horn of Plenty should not become more widely and better known.

CHANTARELLE.

Cantharellus cibarius.

(Plate VII. Fig. 4.)

The Chantarelle is abundant in woods in some districts, such as parts of the New Forest, whilst in other localities it is rather uncertain, and said to be uncommon. It has the advantage of being readily seen, and not easily confounded with anything else. We have sometimes collected two gallons in about an hour. The entire colour is a beautiful egg-yellow, the texture is firm and clean to the touch, the odour rather fragrant, reminding one of apricots, and the taste is a little warm and biting when raw. The gills run down the stem a long way, and are so shallow and thick that they are more like veins than gills, many of them being forked upwards, connected by thin cross-veining. Altogether it is a most remarkable fungus, once seen never to be forgotten. Internally it is solid and

paler yellow, and it does not appear to be at all in favour with insects. Another feature in its behalf is that the substance is so dry, and so little disposed to change or decay, that they may be kept several days and cooked as required, or even strung up and dried for winter use. There are many methods of cooking for the table, and many chances of spoiling them, as they are liable to become tough if not carefully attended to. We are in favour of cutting them up and soaking all night in milk, especially if not quite fresh. By proper manipulation they are a delicious esculent, and when condemned it is usually the cook who should bear the blame.

EDIBLE MUSHROOMS

EDIBLE BOLETUS.

Boletus edulis.

(Plate VIII. Fig. 1.)

This is one of the pore-bearing fungi, in which there are no gill-plates on the under surface of the cap, but the pale yellowish-green surface is punctured with very numerous pores, as if pricked with a pin. After the summer rains it is plentiful in woods, with a convex cap of three or four, and even to six or seven, inches in diameter, of a warm brownish colour, like a Bath bun, quite smooth, and slightly viscid. The stem is very thick, often distorted, pale tawny, four to six inches long, often two inches thick, narrowed upwards, and usually with a beautiful network of lines near the top, but without any collar or ring, and solid throughout. The pores or tubes on the under side of the pileus are easily removed, as they adhere but slightly to the thick flesh of the cap. It is preferable to cook

the flesh without the tubes, as the latter are rather slimy. Young specimens are best, when the flesh is firmest, as they are disposed to become spongy with age. On the Continent the sliced caps are dried and sold as "ceps," for winter use. It may be observed that when cut down through the stem the flesh undergoes little or no change in colour, never turning blue, as in dangerous species. One plan of cooking is recommended which we have never tried—that is, to fry or roast the sliced caps with onions. Two or three other species of these Boleti are excellent, especially one with a rough dotted stem and dirty white under surface of the cap, but the one above described is most strongly recommended.

BUFF CAPS.

Hygrophorus pratensis.

(Plate VIII. Fig. 2.)

The Buff Caps is a rather early species, amongst grass, and has been highly commended. Although it is one of the *Hygrophori*—literally, "water-bearers"—it is of a much drier consistency than many others of that group. The cap is seldom more than two inches broad, becoming nearly flat, smooth and soft, like a kid glove. From the edge of the cap it tapers gradually downwards to the stem, the gills being broad and thick, and running a long way down the stem, which is attenuated to the base. The gills are distant apart, showing the rugged veins at their base. When the whole fungus is cut through longitudinally, it will be seen that the flesh is very thick and solid, of the same tone of colour, but paler than the exterior. The whole fungus is of one colour, although the spores are

white, and this colour is one which is difficult to depict or describe. It is almost of the tint called "gilvous," not tan-coloured, because with more pink; hardly fawn-coloured, because warmer; and not buff, because less yellow. It is a sort of combination of all, with a tendency to dark flesh colour. It is not a woodland species, but occurs on lawns and in pastures, amongst short grass, in the early summer. It requires careful cooking, as it is liable to be condemned as tough, unless treated slowly, but it is a great favourite abroad. We have no fungus similar in appearance or colour which can possibly be confounded with it.

EDIBLE MUSHROOMS

WHITE HELVELLA.

Helvella crispa.

(Plate IX. Fig. 1.)

The Morels and Helvellas differ in structure more than in appearance from the residue of Edible Fungi. In Agarics, and other similar organisms, the spores are naked and exposed on the under surface of the cap, but in the present, and its allies, the spores are enclosed in membranous sacs, which are imbedded in the substance of the pileus. The White Helvella is an autumnal species, and grows on shady banks, and amongst short grass. The stem is two or three inches long, deeply furrowed and wrinkled; and the cap is thin, lobed, and bent back, contorted and twisted in a singular manner. The whole plant is whitish, rather fragile, with little odour, and sweet and nutty in flavour. On account of its dry substance the whole plant dries readily, and may be preserved for winter use, for

the flavouring of stews, soups, etc. It may be stewed fresh, but in this capacity it is not so much esteemed as for its flavouring qualities when dried, in which condition it is a good substitute for the Morel. A second species is nearly as common (*Helvella lacunosa*) and quite as large, if not larger. The cap is less expanded, and of a dark smoky-brown colour, whilst the stem is equally furrowed and channelled, and of rather a dirtier white. It is equally good, and dries with the same facility, so that the two species may be mixed together. We have found them in considerable quantities in Epping Forest, but sometimes only two or three specimens are to be seen. Whenever this happens they should be collected and hung up to dry to await future additions from more successful excursions. They may be found from August to October.

COMMON MOREL.

Morchella esculenta.

(Plate IX. Fig. 2.)

All the Morels which are found in this country are edible, and make their appearance in the spring. The peculiar cap, or pileus, is more or less globose, or conical, and the surface is deeply pitted with large elongated or hexagonal pits, in the flesh of which the spores are imbedded, as in the Helvellas. The present species has the margin of the cap grown to the stem, so as to be continuous with it. The pileus and stem are hollow, the latter externally white and the former light brown, or greyish, with a tinge of olive. They do not appear to be so common with us as in France, since large baskets filled with them are commonly exposed for sale in the markets of Paris at a moderate price. In this country they are undoubtedly local and comparatively rare, occurring in woods or on hedge banks.

The odour, when fresh, is agreeable to a fungus-eater, being decidedly "mushroomy," and when cooked even more enticing. As they dry readily they may be kept for use at any season of the year. In this condition they are even sold in the bazaars of India, and appreciated by the natives. The hollow cap of the fresh fungus may be stuffed with minced veal, and dressed between slices of bacon, "a dish of rare and exquisite flavour." It seems an act of vandalism to convert them into ketchup, and yet they are fully capable of such an operation, and yield an excellent sauce. Fresh Morels are very rarely exposed for sale in London, and then realize high prices.

LANKY MOREL.

Morchella semilibera.

(Plate IX. Fig. 3.)

In some localities this long-stemmed Morel is more plentiful than the foregoing species, from which it differs, not only by the length of the stem, but by a more permanent and reliable character, which is that the lower edge of the pileus is free from the stem all round, and is attached beneath about half-way up, whence the name of *semilibera* or "half free." The cap is smaller than in the Common Morel, and more conical, and the pits narrower and more elongated. This is also a spring species, and is found in similar localities; the two will sometimes be found growing together. As an esculent, the one appears to be equally good with the other, but both are local, if not rare. It is deeply to be regretted that no plan has ever been discovered for the artificial culture of Morels.

There are several other species which are even more rarely found in this country, and especially one, of almost gigantic size, called *Morchella Smithiana*, because it was first found by Mr. Worthington Smith. The cap is almost spherical, and of a tawny colour, with large deep pits. The entire height, including the thick stem, is nearly a foot, and the globose cap about seven inches in diameter. The stem and cap are hollow, and, when stuffed with minced veal, would furnish a substantial meal for a family. The fragments of one nearly as large were gathered from a roadside twelve months ago; it had been found and kicked about by some mischievous boys, who regarded it as a toadstool.

TRUFFLE.

Tuber æstivum.

(Plate IX. Fig. 4.)

This enumeration would not be complete without mention of the Truffle, which is found buried in the ground like a potato, but without any indication on the surface, so that it is not easily to be found. It favours chalky or limestone soils, such as the Sussex Downs, and formerly was hunted by truffle-dogs, trained for the purpose. In these days most supplies come from France, as they are imported at a cheaper rate than our native species could be collected, so that the industry with us is nearly extinct. The French truffle is not precisely the same species as our own, whilst some consider it preferable. It is nearly black, with a rough, or obtusely warted surface, and mostly irregular in shape, from the size of a walnut to that of an apple, with a strong penetrating odour. It is employed chiefly for

flavouring, as an addition to stuffing, to meat pies, and for other purposes. Some are imported fresh, others preserved in oil, and some in slices dried. Those who have had experience of the truffle as an independent delicacy state that when roasted in wood ashes it is something to be remembered, but this is an experience which is reserved to the few. It must always be regarded as the most aristocratic of the mushroom tribe.

EDIBLE MUSHROOMS

POISONOUS MUSHROOMS.

The number of species of poisonous fungi found in this country is comparatively small, and with knowledge and experience the list is gradually being reduced. Some of the species introduced here have been reputed noxious, but the evidence in support is exceedingly weak, whilst a few are, at their worst, only suspicious. Whilst it is advisable that no really injurious species should fail to be recorded, it is quite needless and useless to increase the number of bogies by retaining individuals hitherto suspected, but which have been proved innocent. There was a time, within the memory of men still living, when the majority of indigenous fungi were regarded as "toad-stools," and affirmed to be poisonous. This

has been shown to be a fallacy, and now that they are admitted to be only a minority, further knowledge and wider experience is more likely to tend in the direction of still further diminution than in increase. It cannot be too often urged that in nearly all the cases of mishaps from eating poisonous fungi, such mishaps have resulted from most culpable negligence or gross ignorance, especially in the case of adults, and in children from the propensity to eat anything which it is possible to masticate.

FLY MUSHROOM.

Agaricus (*Amanita*) *muscarius.*

(Plate X. Fig. 1.)

The figure alone should be sufficient for any one to recognize this species at once. In Northern Asia it is used as an intoxicant, and in European countries to poison flies. The pileus is four inches, sometimes six, in diameter, of a brilliant scarlet, with scattered whitish warts, the margin orange or yellow; the stem sometimes eight or nine inches long, with a large pendulous collar or ring. The white gills are perfectly free from the stem, leaving a channel between them. Only the edge of the volva remains at the swollen base of the stem. It is found in autumn in woods, having a predilection in favour of birch. The effects which follow on partaking of this fungus have been recorded somewhat in detail, and resemble intoxication, but with dangerous symptoms which result in death. Some

interest was excited, a few years since, by the announcement of the discovery that the hypodermic injection of atropine was a successful antidote to poisoning by muscarine or amanitine. Although we have been informed of successful applications of this antidote, it has latterly been declared, on medical authority, to be uncertain in its effects. It is better therefore to study the prevention rather than the cure, and to warn all eaters of toadstools against experiments with the brilliant Fly Mushroom. It is safest to be always upon guard, and not to eat any of the brightly-coloured species, especially the red, of which there are a considerable number to be found in the autumn.

CONIC LAWN MUSHROOM.

Hygrophorus conicus.

(Plate X. Fig. 2.)

Amongst the numerous species of brightly-coloured little fungi which flourish on lawns in the late autumn is this one, which has a conical cap, like an extinguisher, about an inch high, and of a deep yellow or dull orange colour at first, but soon turning nearly black wherever bruised or broken. The gills and hollow stem are paler and yellowish, changing colour like the cap. It is wholly sticky when moist, but shining when dry, with a strong and rather unpleasant odour. Not only does it flourish on lawns, but also in pastures, amongst short grass, and by roadsides. Whether it is really poisonous is open to doubt, as we are aware of no evidence to that effect, and yet it is always included as suspicious amongst noxious species, partly perhaps on account of its turning black, and partly

from its disagreeable odour. Several other fungi have been pronounced noxious on account of their odour, and for no other reason. The Common Stinkhorn (*Phallus impudicus*) is one of these, but, although the odour is simply disgusting, until the flies have cleared away the dark slime, we are not convinced that there is anything disagreeable to the taste, or injurious to the stomach, in other parts of the fungus; indeed, we have met with a report of its having been eaten without inconvenience, after being carefully washed. Nevertheless it must be a courageous person who would attempt to stew a Stinkhorn in all its glory, even if not reputed to be poisonous.

POISONOUS MUSHROOMS.

BUFF WARTY CAPS.

Agaricus (*Amanita*) *phalloides.*

(Plate XI. Fig. 1.)

Possibly this is the most dangerous of all native fungi, and exceedingly common in nearly every wood in the autumn. Smith only says that it is supposed to be dangerous, but Dr. Plowright traced more than one case of fungus poisoning to this source. The pileus is from three to four inches broad, with rather a viscid skin, when growing in open places whitish or pale yellow, in more shady places greenish or light olive. Sometimes the top is quite naked, at other times with irregular patches of the volva adhering. The gills are free from the stem, white, broadest in the middle, narrowed to each end; the stem three to five inches high, solid at first, then hollow, bulbous at the base, with a large drooping white collar or ring near the top, and a volva or sheath at the base, the lower portion

grown to the bulb, the upper margin torn and loose. When very young the cap is covered by the volva, which soon cracks, and the young cap rises on its stem, bearing fragments of the torn volva attached to it, whilst the remainder is left like a ragged membrane attached to the bulbous base. Whilst fresh it has very little odour, but soon after being gathered it smells more strongly, becoming more or less stinking in decay. The variety which is pure white, sometimes called a distinct species under the name of *Agaricus vernus*, only seems to differ in colour and in its less fœtid odour, and is equally dangerous. Against these we utter the strongest and most emphatic warning. The spores are white, and it has not the least resemblance to the Common Mushroom.

LIBERTY CAPS.

Agaricus (*Psilocybe*) *semilanceatus.*

(Plate XI. Fig. 2.)

One of the commonest of fungi, amongst grass in pastures and by roadsides, during summer and autumn. The cap is of that peculiar conical form which is conventionally associated with the "cap of liberty," about half an inch broad, and a little longer, sharp pointed at the top, and wholly dirty white or ochre. The stem is long and flexuous, according to the length of the grass, mostly four to five inches, and scarcely so thick as a straw, and whitish; gills pale brown at first, and finally nearly black; spores purple-brown. There is a form which has the base of the stem of a distinct indigo-blue. It may not be a true variety, but it is the most dangerous form. This little species is included here because it was instrumental in poisoning two sets of children in the same year, and about

two hundred miles apart. In both instances some of the fungi were found, of which the children had eaten in the fresh state, and they proved to be this species, of the form with the distinct blue base to the stem. Most probably all kinds are more poisonous when fresh, as the virus is of a volatile nature, and either partly diffused by heat or neutralized by salt. As this species is so very common, it should be widely known to parents and guardians, that children at play in the fields may be warned against putting in their mouths any of the little "toadstools" which grow amongst the grass. We cannot conceive that any sane person could ever collect and eat this singular little species under the impression that it was an available substitute for the Common Mushroom. It is so utterly unlike in appearance as well as in size.

DUNG SLIMY CAPS.

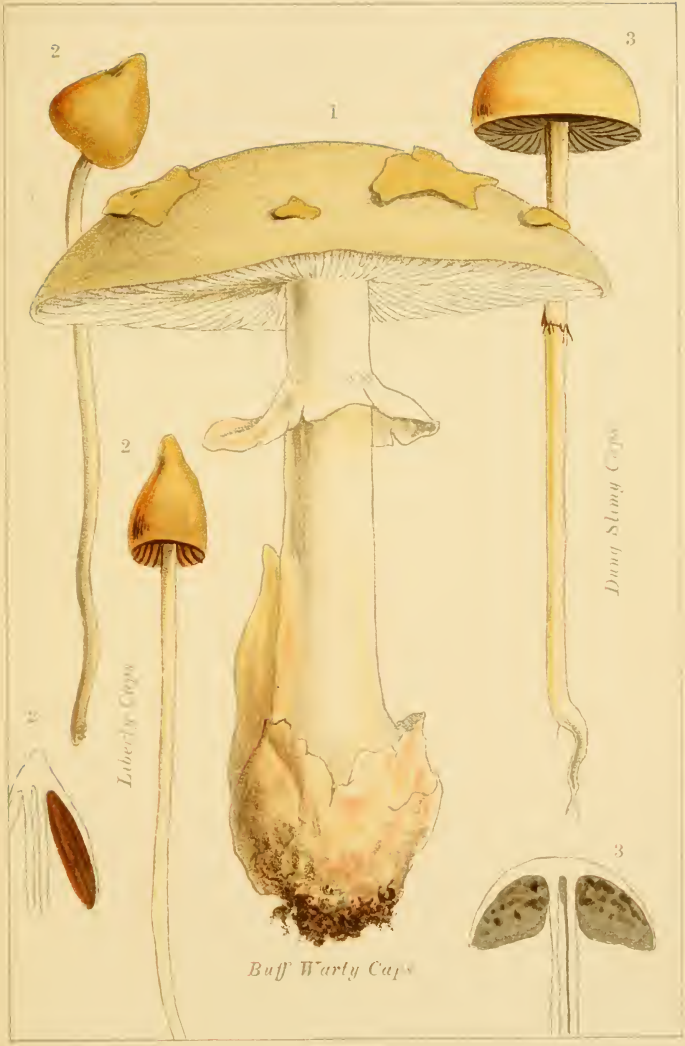
Agaricus (*Stropharia*) *semiglobatus.*

(Plate XI. Fig. 3.)

This familiar little fungus is common in every pasture upon dung, and would not be mentioned here save that it is reported that children have gathered of it and poisoned themselves. It has a long, straight, slender stem like a straw, four or five inches long, with a line, like a collar, above the middle. The pileus is hemispherical, about an inch broad, and pale yellow, covered, as well as the stem, with a glutinous slime. The gills are very broad, and grey, spotted with the dark purple-brown spores. It was Sowerby who drew attention to this species as dangerous, and intimated that it had been fatal. Since that period we are not aware of any further evidence against it.

Other species have at various times been reputed to be poisonous or suspicious, but

mostly on the faith of a disagreeable odour or taste, rather than from any distinct evidence. There are some which are so repulsive, from their fœtid odour, that we consider *that* circumstance quite sufficient to prevent accident. Most people are not content to put into their mouths that which offends their noses.



POISONOUS MUSHROOMS.

CLUSTERED PINK-GILLS.

Agaricus (*Entoloma*) *sinuatus.*

(PLATE XII. FIG. 1.)

THERE is very little difference in toxological properties between this species and *Agaricus fertilis*, and botanically they are closely allied. The present species is the most common in autumn in woods, where it is found in large groups, consisting probably of twenty or thirty specimens. The pileus or cap is from four to six inches in expanse, at first convex, then flattened, with the edge split and turned up. It is of a greyish-white or pale grey colour, with a tinge of yellow, quite smooth, and often cracked when old. When three or four grow close together they are much contorted by mutual pressure. The gills are very broad, yellowish-pink, becoming pale reddish, with pinkish spores. The stem is solid, whitish, five to seven inches long, and nearly an inch thick, fibrillose,

sometimes splitting, but without any collar or ring. It has a faint heavy odour, and like many other of the pink-spored species, decays rapidly.

The other species, *Agaricus fertilis*, which nearly poisoned Mr. Worthington Smith and some of his family, is of about the same size, and grows also in woods, but the stem is somewhat scaly, and swollen at the base. The pileus becomes flat, with the edges turned down, and not upwards; it is moreover powdery or downy, and pallid reddish. The gills are not so broad, and of a dull flesh colour. It is seldom otherwise than solitary, with a rather mealy smell. We have always been suspicious of the pink-spored species, but these two are evidently deserving of something more than suspicion, for they are veritably dangerous.

STYPTIC SIDEFOOT.

Panus stypticus.

(Plate XII. Fig. 2.)

Old stumps and logs in woods often have a small fungus growing upon them with a short stem on one side, so as to be attached sideways, spreading out like a fan. They are not more than an inch across, and often less, but half-a-dozen will grow together in a cluster, overlapping each other. The surface is quite smooth, of a pale ochre or flesh colour, the thick-set gills on the under surface radiating from the thick stem. The substance is dry, with no particular odour, and would scarcely be noticed unless hunted for. This little species, however, enjoys a bad reputation, for although Smith only utters the caution that it had better be avoided, Dr. Lambotte asserts that it is distinctly dangerous, being a violent purgative. Were it not for this warning the plant is almost too insignificant to demand

attention, as no sane person would collect such a minute object, no larger than a brace-button, for breakfast. A few large species that are found growing on dead trunks may be eaten, but it is always advisable to be upon guard against species which flourish on rotten wood, since so many of them are bitter and unpleasant, even if not distinctly injurious.

POISONOUS MUSHROOMS.

CLUSTERED YELLOW MUSHROOM.

Agaricus (*Hypholoma*) *fascicularis.*

(Plate XIII. Fig. 1.)

The above-named fungus is about the most common everywhere in the British Islands. It appears soon after midsummer, and lasts until destroyed by the frosts. Wholly confined to rotten wood, it grows on fallen trunks, logs, but chiefly on old stumps left in the ground, and forms dense clumps, sometimes two or three feet across. The cap is usually about an inch, but occasionally two inches, in diameter, of a sulphury yellow, reddish or brownish on the top, turning brown in decay, smooth and even. The stems are hollow and elongated, flexuous, and closely pressed together at the base, where they are brownish, but yellow in the upper portion. The gills have a dull greenish tinge, which lasts for a long time, at length becoming discoloured with the purple-brown spores. The odour

is rather strong and heavy, and the taste very bitter and disagreeable. It is very usual to regard this as a poisonous species, but possibly it is not so in reality; it is, however, so disagreeably bitter and unpleasant, that we doubt if any one would eat sufficient of it, under any circumstances, to do them any grievous bodily harm.

A very similar species (*Agaricus sublateritius*) but with larger caps, the colour less yellow and more of a brick-red, grows also in large clumps on stumps. The inexperienced would hardly distinguish the difference, as the gills have the same olive tinge, and it is equally bitter and disagreeable.

SULPHURY MUSHROOM.

Agaricus (*Tricholoma*) *sulphureus.*

(Plate XIII. Fig. 2.)

This yellow Agaric is by no means common, but it is very striking, and not readily overlooked. It is one of the white-spored series, notwithstanding the coloured gills. It is a woodland species, and grows upon the ground, either solitary or two or three in company. The pileus is from one to two or three inches broad, fleshy and convex, at length somewhat depressed, rather silky at first, but soon smooth, of a sulphury yellow colour, sometimes dingy or inclined to rufous. The stem is from two to three inches long, and of the same colour as the pileus; the gills are rather thick and distant, bright yellow. The odour is strong, rather stinking, and unpleasant to the taste. Some have compared the scent to that of "gas-tar" or creosote. It is hardly a species which is liable to be confounded with anything

else or with any species that is edible, and it presents so little attraction that we doubt if any one would be tempted to try it. Nevertheless it is reputed to be poisonous.

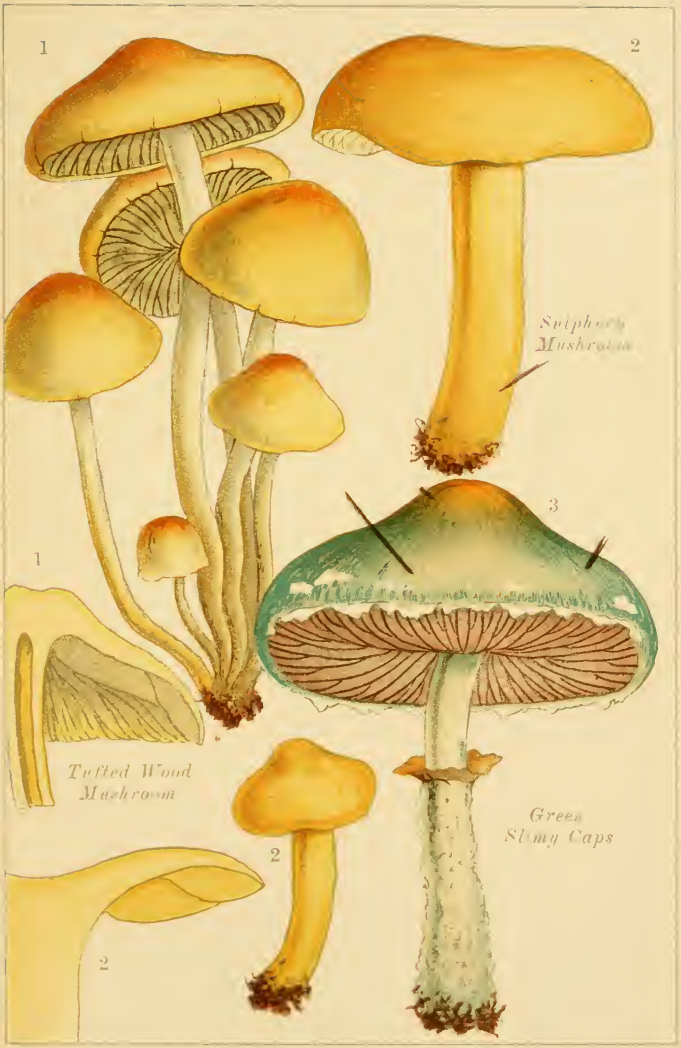
GREEN SLIMY CAPS.

Agaricus (*Stropharia*) *æruginosus.*

(Plate XIII. Fig. 3.)

There is something suspiciously adverse to esculent qualities in the slimy green Agaric above-named. It is common enough in woods amongst grass and dead leaves to be familiar, but it is not attractive. The pileus is usually about two inches broad and convex, covered with a verdigris slime, which is gradually washed away and leaves a pallid colour, which becomes of a warm brown about the apex. A few scaly white patches are at first attached about the margin, but these fall away with the gluten. The stem is rather slender and hollow, whitish, the lower portion scaly, with a distinct collar or ring just above the middle. The gills are of a dull brown, with a tinge of violet, and the spores of a purple-brown. As it is seen growing it is certainly rather handsome, but when

gathered and handled it is certainly not enticing as an article of food, and we can hardly suppose any one imaginative enough to believe in its virtues. It is impossible to mistake it for any known edible species, and the only other greenish Agaric to be found in woods is the very fragrant *Agaricus odorus*, which is never slimy, has no collar to the stem, and possesses a most delightful odour of melilot, which adheres to it to the last. The Green Slimy Caps has the reputation of being poisonous, which is somewhat general on the Continent, but probably this is only assumed from its disagreeable taste and repulsive appearance rather than from any active property. Under any circumstances it should be avoided as a very suspicious character.



POISONOUS MUSHROOMS.

MAGPIE MUSHROOM.

Coprinus picaceus.

(Plate XIV. Fig. 1.)

In some respects this resembles the Inky Mushroom, but it grows upon the ground singly, and not in tufts. It is found by roadsides and by-paths in woods, but is nowhere common. We have met with it in September, but the gills soon deliquesce and drop away in an inky fluid, and nothing is left of it but a black patch. The pileus is bell-shaped, at first pale, then the cuticle splits and adheres in irregular patches. As the gills become black, so the cap darkens, the thin substance permitting the blackness to show through, until the cap is pied with light patches on a black stratum. The stem is straight and erect, about six inches long, a little bulbous at the base, and white, except where stained by the spores. As the gills deliquesce it acquires a fœtid

odour, and is in all respects uninviting. We are not at all satisfied that it is really poisonous, although it is a point scarce worth determining, for no one would think of eating it, were it ever so harmless, and it is too rare to be in any sense a public danger. Flies are usually seen hovering around this species, especially when in a state of decay, being attracted by its somewhat unpleasant odour. When the gills drop away in an inky mass, the flies may be observed sucking it up. It has been affirmed that by such means the spores of this and other species are disseminated, so that for the perpetuation of the species they are indebted to the intermediation of flies, through whose bodies the spores themselves pass uninjured.

WOOD WOOLLY FOOT

Marasmius peronatus.

(Plate XIV. Fig. 2.)

This is supposed to be the woodland representative of the Fairy Ring Champignon, and persons have been often cautioned against confounding them, which is a libel on humanity, for they are nothing like each other. This species is autumnal, being plentiful in September and October, with a dry, dull umber-coloured pileus, about two inches in diameter, gills which are broad and rather distant, of almost the same colour, but with a slight tinge of purple, and an erect rigid stem, the lower half of which is clothed with a pale yellowish, shaggy wool. The spores are white, notwithstanding the dark gills. This species is reputed poisonous, and yet it is sometimes mild enough to the taste, when fresh. Like the Champignon, it is very tough and flexible, so that specimens

may be carried loose without breaking. Unlike the Champignon, it always grows in woods and amongst dead leaves, and never forms rings or parts of rings.

Another species, *Marasmius urens*, is always named with a caution, although we believe the true species to be very uncommon. It is a woodland species, and we believe always so, growing in tufts, the stem being downy to the top and woolly at the base, cap and gills similar to the preceding. Nearly all the specimens which we have seen called by this name are merely forms of *M. peronatus*, although it is really quite different, more persistently acrid, and cæspitose. Both species should be avoided, because, if innocuous, they would be tough and indigestible.

POISONOUS MUSHROOMS.

BITTER STRAW RUSSULE.

Russula fellea.

(Plate XV. Fig. 1.)

This common Russule appears under trees plentifully throughout autumn. The pileus is about three inches in diameter, convex and flattened, a little darker in the centre, but otherwise the entire fungus, gills, stem, and internal substance are ochrey, or of the colour of straw. The stem is rather short and equal, and the flesh firm, but not elastic. There are several ochraceous species, but the tone of colour in this differs from all, and it appears to be always bitter to the taste when fresh. It is regarded as suspicious, and if not really poisonous, it seems to be quite unfit for food. We do not consider it dangerous.

There is a very large Russule which is common in woods in August, which is

darker than the above, almost dirty tan-colour, or foxy, and six inches in diameter, the margin coarsely sulcate with parallel channels, the elevated space between being coarsely tubercled. All parts are sticky, and rather brittle, but above all it has usually a very strong fœtid odour, and is called *Russula fœtens*. It is one of the species of which slugs seem to be particularly fond, for it is generally slug-eaten. We have said that it is *usually* fœtid, but on two or three occasions we have found specimens of the same species, which cannot well be mistaken for any other, in which the odour was decidedly of a different character, being fragrant and agreeable. We do not pretend to account for the circumstance, but merely record it as a fact. Apart from the very unpleasant odour and appearance it presents, we doubt this species being really noxious.

ACRID MILK-MUSHROOM.

Lactarius acris.

(Plate XV. Fig. 2.)

In so far as our experience goes this species is uncommon, having met with it very rarely during thirty years. It occurs in woods, and is probably sometimes confounded with *Lactarius fuliginosus*. The pileus is of a dull, dark, sooty grey, and often irregular and viscid, seldom two inches broad, with a stem that is not uncommonly placed somewhat on one side, so that the cap is oblique; it is pallid and attenuated downwards. The gills are rather crowded, and yellowish or tawny. When cut or bruised it yields a white milk, which is very acrid to the taste, and slowly becomes discoloured, changing to a dull reddish or neutral orange colour. This change is not so rapid as in many species, but ultimately takes place, and is a very good clue to the species. It is altogether a darker fungus

than *Lactarius pyrogalus*, and is scarcely zoned at all, whereas the milk in the latter is persistently white, although equally acrid. Both are doubtless to be strictly avoided. The Milk-Mushrooms are easily distinguished by cutting or bruising, when the milk exudes plentifully from all parts. If this milk proves to be acrid, and biting to the tongue, it will be prudent to discard the fungus at once. It will be safest never to conclude that a mushroom which possesses a milky juice is good for food, unless it is thoroughly well known and has a good reputation.

SHAM MUSHROOM.

Agaricus (*Hebeloma*) *fastibilis.*

(Plate XV. Fig. 3.)

On one or two occasions this fungus has come up in considerable quantities on mushroom-beds, and might have led to serious consequences had it not been detected. It is usually found growing in woods. The pileus is compact and fleshy, two inches and more across, smooth and tan-coloured or growing pallid, with a rather darker centre, the involute margin downy; the stem two or three inches long and half an inch thick, thickened at the base, silky, and with a web-like ring; gills rather broad and distant, pallid at first, then dusky, with dark brown spores, and the edge whitish. It is a very suspicious species, and has the reputation of being noxious, so that it is an unwelcome visitor when it appears on mushroom-beds. The deception is disclosed by

the absence of the distinct membranaceous ring.

A similar species resembles (rather than imitates) the St. George's Mushroom; this is *Ag. crustuliniformis*, which is about the same size, but less robust and fleshy, darker in colour, resembling a cracknel, with dusky gills and dark brown spores. Instead of the very strong mushroomy odour of the St. George's Mushroom, it has a faint, disagreeable smell, and, to complete the deception, it has the habit of coming up in rings, but it grows in woods and not in pastures, and comes up in the autumn instead of the spring. This also is a reputed deleterious species.

POISONOUS MUSHROOMS

EMETIC RUSSULE.

Russula emetica.

(Plate XVI. Fig. 1.)

The very name of this Russule seems to carry its own condemnation, which accords with the consensus of mycological opinion in Europe. It is an inhabitant of woods in the autumn, with a pileus about two or three inches in diameter, and but slightly convex. Its usual colour is of a rosy-pink, or bright red, and the thin cuticle easily separates, showing the red flesh beneath; this is mostly relied upon to distinguish it from other red species. The substance is pure white and very fragile. The gills are also quite white, and do not reach the stem, but leave a channel around it. The stem is spongy, and either white or tinged with red. There are no short gills between the longer ones, and the spores are white. This species is acrid to the palate, and is said to possess emetic properties, due to a

principle called *emetine*. We know of no European authority which does not pronounce this species dangerous. Notwithstanding this, an American writer says : " I am able to assert positively, from having eaten full meals of them often, that *Russula emetica* is as good as any Russule." We must be permitted to doubt whether he has not been eating some other red species which is innocuous, and must continue sceptical until his experience is confirmed.

FIERY MILK-MUSHROOM.

Lactarius pyrogalus.

(Plate XVI. Fig. 2.)

This is one of the peppery species, which exudes a hot and fiery milk on being wounded. The pileus is about two inches broad, depressed in the middle, smooth, and of a livid grey colour, with darker zones; the gills are dark yellowish, or almost tan-coloured, running down the hollow pallid stem; the milk is very copious, and white. It is found chiefly in woods, and may be recognized by its colour, and that of the gills, whereas the spores are white. We are not disposed to champion this species, but rather to utter a strong caution against it, the universal opinion being in its condemnation.

Somewhat resembling the above in form, but of a bright reddish-brown colour, is *Lactarius rufus*, by no means common in

woods, yielding a very acrid and biting white milk. It is affirmed to be one of the most deadly of British fungi, but we shall content ourselves with the general caution not to eat any of the milky fungi which yield an acrid or peppery juice. Indeed, if *all* the milky fungi were placed under the ban indiscriminately, it might be the most politic course to adopt. There are plenty of sound edible species without them.

WOOLLY MILK-MUSHROOM.

Lactarius torminosus.

(Plate XVI. Fig. 3.)

The chief danger associated with this mushroom is that of mistaking it for the Delicious Milk-Mushroom (*Lactarius deliciosus*), which it somewhat resembles. It is common enough in some counties in autumn, in woods and on heaths, with a short stem, so that it grows close to the ground. The pileus is from three to four inches in diameter, convex, depressed in the centre, but with the woolly margin turned inwards. In colour it is usually a light brick-red or dingy orange, and sometimes flesh-coloured, with darker zones. The margin is hairy and paler, almost white, and the gills whitish, with white spores. When cut or wounded a white milk exudes, which is acrid and biting to the tongue. By this feature it may be distinguished from the edible species above-

named, in that the milk is *white* and does not change colour. Whether it will poison any one if eaten is rather uncertain, and probably assumed from the acrid quality of the milk. Some authors state that it is not poisonous, others that it is only suspected, and others, with whom we agree, that as it is doubtful it is better to abstain.

POISONOUS MUSHROOMS.

WHITE WOOLLY MILK-MUSHROOM.

Lactarius vellereus.

(Plate XVII. Fig. 1.)

It is customary to find in woods the above-named very large chalky white fungus, usually several growing together. The pileus may be eight or nine inches across, depressed in the centre, and funnel-shaped, but with the edges bent over outwards, everywhere woolly with a very short down, and dirty-looking from the adhering soil, etc.; the gills are broad, not very close, running down the stem. The latter is short and very thick, often two inches, and solid. The whole fungus is very firm, dense, and compact, yielding when bruised or broken a copious white acrid milk. Tradition affirms that this species is very poisonous, and we have been too well satisfied with tradition to try experiments.

There is a similar white species equally common in woods at the same period of

the year (*Lactarius piperatus*), which has been declared poisonous for the past fifty years. The pileus is quite smooth instead of woolly, the gills are narrower and close together, the milk is white and peppery, the stem very short and thick, and the pileus depressed, like a wine-glass, sometimes as much as six or eight inches in diameter. Is it really poisonous, or has it been only suspected on account of its acrid milk? Many years ago the Rev. Dr. Curtis informed Berkeley that he constantly had eaten it in the United States without inconvenience, and found it excellent. Still more recently a correspondent in New Jersey writes distinctly that it is edible, for he has eaten it. These persons are competent judges of the true species, and quite as competent to pronounce on its properties, hence we conclude that it is *not* poisonous, although we class it with the poisonous species, because we are not prepared to recommend it without testing it.

BITTER BOLETUS.

Boletus felleus.

(Plate XVII. Fig. 2.)

Great bitterness seems to characterize many species of Agarics and some Boleti, on which account they have at once been regarded as poisonous, when we think that they should only have been ranked as unfit for food. Evidence tends to show that intense bitterness does *not* indicate that the species is poisonous, although it may render the fungus nauseous. The Bitter Boletus is not uncommon in some localities in autumn, inhabiting woodlands, and may be distinguished from other species by the flesh-coloured tubes and rosy spores. The pileus is usually about three inches broad, and convex, smooth and soft, of a yellowish-red or foxy colour, with a thick white flesh, which becomes of a dull flesh colour when broken. The under surface is convex and of a pale flesh colour, with irregular pores,

which are angular and rather large. The stem is dingy yellow, thickened at the base, and reticulated above with a network of raised veins, usually darkest below. Everywhere it is liable to become discoloured when bruised or broken. The taste is bitter, and although disagreeable and unfit to be eaten, doubtless its poisonous properties have been exaggerated.

POISONOUS MUSHROOMS.

SATANIC BOLETUS.

Boletus satanas.

(Plate XVIII. Fig. 1.)

This grows to be one of the largest and most splendid Boleti we possess, but it seems to be rather local. On one occasion we found twenty or thirty specimens growing together, some of which were a foot in diameter, eight or nine inches high, with a stem four inches thick, but they are often much smaller. It is autumnal, and favours rather open woods. The pileus is whitish or pale flesh colour, but soon discoloured, for it changes wherever bruised, and, being viscid, is generally ornamented by the adherence of dead leaves, twigs, and particles of soil. The under surface is very convex, yellowish, then red, blood-red, or crimson, punctured with myriads of pores. The stem is always thick and short, bright yellow or orange above, purplish-red below, and in the upper half reticulated with a

network of delicate veins. When cut or broken the very thick flesh at once changes to deep violet blue, and every part changes in like manner when touched or bruised, so that its external beauty is soon marred. This Boletus finds a place in every book on poisonous fungi, and yet its toxicological properties are now being called in question, but we fear it will always remain open to suspicion until confirmatory evidence is produced. Mr. McIlvaine says that as an article of food it is one of the best of the Boleti, whilst even the name suggests that it has ever been held to be one of the most dangerous.

LURID BOLETUS.

Boletus luridus.

(Plate XVIII. Fig. 2.)

In all books and lists this is set down as a poisonous species, and no one ever seems to have doubted it until an American correspondent wrote us that he had eaten this and *Boletus satanas*, and found them excellent. At present we are not disposed to follow his example. The cap, or pileus, is hemispherical, from three to six inches in diameter, and dull umber brown, finely velvety but rather viscid. The under surface is porous, orange or red, and sometimes blood-red. The stem is thick, usually rather short, more or less orange above, and red or brown below, and either sprinkled with dots or with a network of delicate veins. The flesh is thick and firm, changing immediately, when cut or bruised, to indigo-blue in all parts except the base of the stem, which is reddish. Fries says

that the taste is pleasant, but that it is certainly poisonous, and he figures it with his poisonous fungi of Sweden. It is by no means uncommon in woods in August and September, and may be known at once by the rapid change of its yellowish flesh to deep blue. There are one or two other species which are similar, and change in a like manner, but they are not so common, and may possibly be only varieties. It will always be safe not to eat any fungus which changes to blue when cut or broken, notwithstanding anything Brother Jonathan may say.

THE END.

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POISONOUS MUSHROOMS

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